

530,695

Rec'd PCTPTO 08 APR 2005

PCTPTO 08 APR 2005

(12) INTERNATIONAL PUBLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
22 April 2004 (22.04.2004)

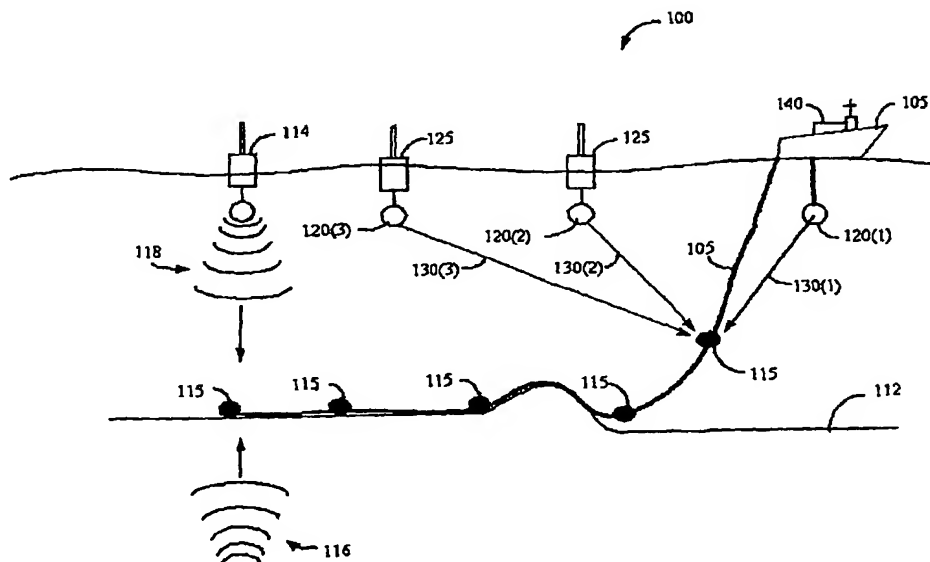
PCT

(10) International Publication Number
WO 2004/034091 A1

- (51) International Patent Classification⁷: **G01V 1/38**
- (21) International Application Number:
PCT/GB2003/004499
- (22) International Filing Date: 13 October 2003 (13.10.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
0223673.5 11 October 2002 (11.10.2002) GB
- (71) Applicant (for AE, AG, AL, AM, AT, AU, AZ, BA, BB, BE, BG, BR, BY, BZ, CH, CN, CO, CR, CU, CY, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, HR, HU, ID, IE, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, SZ, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW only): **WESTERNGECO SEISMIC HOLDINGS LIMITED [GB/GB]; PO Box 71, Craigmuir Chambers, Road Town, Tortola (VG).**
- (71) Applicant (for FR only): **SERVICES PETROLIERS SCHLUMBERGER [FR/FR]; 42, rue Saint Dominique, F-75007 Paris (FR).**
- (71) Applicant (for CA only): **WESTERNGECO CANADA LIMITED [CA/CA]; 24th Floor, Monenco Place, 801 6th Avenue SW, Calgary, Alberta TP2 3W2 (CA).**
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **MARTIN, James, Edward [GB/GB]; 32 Dunstal Field, Cottenham, Cambridge, Cambridgeshire CB4 8UH (GB). FRIVIK, Svein, Arne [NO/NO]; Ekraavn 42, N-0756 Oslo (NO). TYLER, Peter [GB/NO]; Hildertunet 11, N-1341 Slependen (NO). THOM, Kyrre [NO/NO]; Schlumberger House, Solbraaveien 23, N-1370 Asker (NO).**
- (74) Agents: **MARKS & CLERK et al.; 4220 Nash Court, Oxford Business Park South, Oxford, Oxfordshire OX4 2RU (GB).**
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

[Continued on next page]

(54) Title: **METHOD AND APPARATUS FOR POSITIONING OF SEISMIC SENSING CABLES**



(57) Abstract: The present invention provides a method and apparatus for determining the position of a seismic cable being used to perform a marine seismic survey. The apparatus includes at least one seismic sensor (115) and a plurality of sources (125) deployed in a manner that is structurally independent of the seismic sensors (115) and adapted to provide a positioning signal (130) distinguishable from a seismic survey signal (118) to the seismic sensors.

WO 2004/034091 A1



(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

— with international search report